



May 21 1 41 PM '96

MAILED 12 PM '96

May 20, 1996

Mr. Chuck B. Schwer
Agency of Natural Resources
DEC, Waste Management Division
103 South Main Street / West Building
Waterbury, Vermont 05671-0404

RE: Site Assessment Report for North Hartland Dry Kiln
North Hartland, Vermont. (VTDEC Site #95-1934)

Dear Mr. Schwer:

Enclosed, please find the Report on the Investigation of Subsurface Petroleum Contamination at the above referenced site.

Feel free to call me at (802) 865 - 4288 if you have any questions or comments regarding this site.

Sincerely,

Laurie T. Reed,
Project Geologist

Encl.

- c. Mr. Gary Fairbanks, Cersosimo Lumber Company
Mr. Thaddeus Betts, P.E., Southern Vermont Engineering

MAY 21 1 42 PM '96

**REPORT ON THE INVESTIGATION
OF SUBSURFACE
PETROLEUM CONTAMINATION**

WASTA INVESTMENT
CORPORATION

AT

**NORTH HARTLAND DRY KILN
DEPOT ROAD
NORTH HARTLAND, VERMONT**

VTDEC SITE #95-1934

May, 1996

PREPARED FOR:

**Cersosimo Lumber Company, Inc.
1103 Vernon Street
Brattleboro, Vermont 05301**



**PO Box 943 / 19 Commerce Street
Williston, VT 05495
(802) 865-4288**

Griffin Project #3964810

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I. INTRODUCTION

This report describes the investigation of subsurface petroleum contamination at North Hartland Dry Kiln located on Depot Road in North Hartland, Vermont. This investigation was conducted by Laurie T. Reed, Project Geologist of Griffin International Inc. (Griffin) for Cersosimo Lumber Company, Inc., (Cersosimo) of Brattleboro, Vermont, owner of the site.

This investigation was initiated after petroleum contamination was discovered at the site during the closure of four underground storage tanks (USTs) at the site on October 26 through October 30, 1995.

The USTs removed were:

- #1 a 20,000 gallon capacity No. 6 oil, approximately 16 years old,
- #2 a 20,000 gallon capacity No. 6 oil, approximately 22 years old,
- #3 a 12,500 gallon capacity No. 6 oil, approximately 22 years old,
- #4 a 5,000 gallon capacity Diesel, approximately 16 years old.

UST#1, UST#2, and UST#3 were located in a common field adjacent to the south side of the kiln building. These three USTs were used for No. 6 boiler oil for the kilns. UST#4 was located approximately 70 feet south of the kiln building, across the site access road from the first three USTs. This UST was used for diesel fuel for trucks and heavy equipment. A pump was located on top of UST#4.

No visual or olfactory evidence of petroleum contamination was detected in the excavation of the diesel UST (UST #4). No volatile organic compounds (VOCs) were detected by photo ionization device (PID) in soil samples collected from the excavation of UST #4.

UST #1 and UST #2 were in very poor condition with numerous holes. Extensive petroleum contamination was present in the excavation of the three No. 6 oil USTs. In the area of the UST piping from the building to the three USTs, No. 6 oil saturated soils were present from just above the suction piping at three feet below grade to below the bottom of the excavation at 18 feet below grade. No. 6 oil saturated soils were present beginning at approximately eight feet below grade in the areas adjacent to UST #1 and UST #2. No. 6 oil saturated soils were present at beginning at approximately 13 feet below grade in the areas adjacent to UST #3. Liquid No. 6 oil was present below UST #1 and UST #2.

After the three No. 6 oil USTs had been removed, the excavation was extended vertically to a depth of 18 feet below grade in an effort to recover the free product and "soupy" soils so that an acceptable foundation would be present for the installation of new USTs. One soil sample was collected from the area beneath UST #1 and UST #2 at 18 feet below grade. A test pit was excavated in the bottom of the UST excavation to a depth of approximately 22 feet below grade. A soil sample was collected from the bottom of the test pit. Soils at 22 feet below grade were contaminated with No. 6 oil. The two soil samples were submitted for analysis of volatile organic compounds via EPA Method 8020 and for total petroleum hydrocarbons via modified

EPA Method 8100. Analyses indicate significant concentrations of petroleum compounds in both samples.

During the excavation required for the extraction of the three No. 6 oil USTs and during the excavation of the free product and No. 6 oil saturated soil from below the USTs, a total of approximately 425 cubic yards of contaminated soils were stockpiled. The soils were subsequently asphalt batched by MTS, Inc.

This investigation was requested by the VTDEC in a letter (dated February 27, 1996) to Gary Fairbanks, Cersosimo from Chuck Schwer, Vermont Department of Environmental Conservation (VTDEC). Griffin prepared a Work Plan and Cost Estimate detailing the work performed in this assessment, which was submitted to Cersosimo on February 29, 1996 and was submitted to the VTDEC on March 19, 1996. The Work Plan was approved by the VTDEC in a letter to Laurie T. Reed, Griffin, on March 20, 1996. Site investigation work began at North Hartland Dry Kiln on April 10, 1996.

II. SITE DESCRIPTION

The site is located in a mixed industrial and residential area on Depot Road in North Hartland, Vermont (See Site Location Map in Appendix A.). North Hartland Dry Kiln has been a wood drying kiln for more than 20 years. The site was acquired by Cersosimo in 1995. Cersosimo renovated the site in 1995, removing all USTs and replacing the No. 6 oil USTs with two modern 15,000 gallon capacity USTs. The new USTs are located in the same area as were the former No. 6 oil USTs.

Three buildings are located at the site. They are the kiln building, a large lumber storage shed, and a small office. The area of the buildings is generally level. The site is terraced towards the southwest where wood is stored. Topography rises steeply towards the south and declines towards the north. Surface runoff from the site flows off the site towards the north and then flows northeast to the Ottauquechee River which flows south to the Connecticut River. The Ottauquechee River is located both approximately 1,000 feet north of the site and 700 feet east of the site. The Connecticut River is located approximately 1,000 feet south of the site.

The site lies on the north flank of a 2,000 foot long ridge which trends approximately east-west. The width of the ridge varies from less than 100 feet on its western end to approximately 1,200 feet on its eastern end. The ridge is surrounded by flood plains of the Ottauquechee and Connecticut Rivers. Soil borings indicate overburden at the site consists of predominantly interbedded fine grained sands with varying amounts of silt, medium and coarse grained sands, and small gravel. Bedrock ranges in depths from 0.0 to over 35 feet below the surface. The bedrock surface slopes northerly under the site. Bedrock crops out on the southern portion of the site. The Geologic Map of Vermont (Charles G. Doll, 1961) indicates that bedrock beneath the site is the Devonian Gile Mountain Formation which is characterized by gray quartzite-muscovite phyllite or schist.

The site is abutted to the west by wooded land. Residential properties and wooded land are located east and south of the site. The site is abutted to the north by the Vermont Railway. North of the site, across the railroad, is an industrial facility, open land, and residential properties.

III. INVESTIGATIVE PROCEDURES

To better define the extent of subsurface petroleum contamination at the site, Griffin installed four monitoring wells on April 15, 1996. MW1 is located east-southeast of the No. 6 oil UST tank field, approximately five feet from the location of former UST#3. MW2 is located south of the No. 6 oil UST tank field, approximately 35 feet south of former UST#1, and in the direct vicinity of former UST#4. One Soil Boring (SB1) was also drilled in the same area, five feet east of MW2. MW3 is located east of the No. 6 oil UST tank field, approximately 10 feet east of the locations of former UST#1 and UST#2. MW4 is located approximately 55 feet north-northeast of the former No. 6 oil UST tank field and 55 feet north-northeast of MW3.

Depths to groundwater were measured in all on-site monitoring wells on April 30, 1996. Groundwater samples were collected from the monitoring wells for laboratory analyses on April 30, 1996. Soil samples collected from the boreholes, were screened for VOCs with a PID.

A. Monitoring Well Installation

Monitoring wells (MW1, MW2, MW3, and MW4) and soil boring (SB1) were installed on April 15, 1996 by Technical Drilling Services, Inc., of Leominster, Massachusetts under the direct supervision of Griffin. The wells were installed in 8.5-inch diameter borings using a truck mounted 4 1/4" id hollow stem auger. The wells are constructed of two inch diameter, 0.010" slot, PVC well screen and attached solid PVC riser. The annulus between the borehole wall and the screened section of each well is filled with grade #1 sand pack to filter fine sediments in groundwater from entering the well. Approximately two feet above the screened section of each well and approximately two feet below grade, the annulus between the borehole wall and the riser is filled with a bentonite clay seal to prevent surface water from entering the borehole. Each well is protected at the surface by a flush mounted steel well head man-hole with a bolt down cover, except for MW2 which is protected by a 4" id iron pipe stick-up protector with locking cap. The manholes and stick-up pipe are set in concrete. Well construction details are listed on the well logs in Appendix B.

B. Soil Boring and Screening

Undisturbed soil samples were collected at five foot intervals from the borings using a split-spoon sampling device. Samples were screened for VOCs using an HNU Model PI-101 PID equipped with a 10.2 electron-volt lamp. Samples were logged by the supervising Geologist. Prior to screening, the PID was calibrated with isobutylene with reference made to

benzene. Detailed soil descriptions and VOC concentrations are listed on the well logs in Appendix B.

MW1 was installed east-southeast of the No. 6 oil UST tank field, approximately five feet from the location of former UST#3, to assess conditions in this area close to the No. 6 oil tank field. No significant concentrations of VOCs were detected in any of the soil samples collected from MW1, and no visual or olfactory evidence of No. 6 oil was present. The boring of MW1 was advanced to bedrock at 32 feet below grade.

MW2 was installed south of the No. 6 oil UST tank field, approximately 35 feet south of former UST#1, and in the direct vicinity of former UST#4. One Soil Boring (SB1) was also advanced in the same area, five feet east of MW2. SB1 was initially bored for MW2, but auger refusal occurred at 17 feet below grade. MW2 was bored to confirm the presence of bedrock at this depth. No significant concentrations of VOCs were detected in any of the soil samples collected from MW2 or SB1, and no visual or olfactory evidence of petroleum contamination was present. The boring of MW2 was advanced to bedrock at 17.5 feet below grade.

MW3 was installed east of the No. 6 oil UST tank field, approximately 10 feet east of the locations of former UST#1 and UST#2. A thin 0.2 foot thick layer of No. 6 oil saturated sand was present in the boring at approximately 15 feet below grade. A thick layer of No. 6 oil saturated sand was intersected in the sample collected from 20 to 22 feet below grade. Neither the sample collected above the water table at 25 to 27 feet below grade, or the sample collected from the phreatic surface at 30 feet below grade, exhibited evidence of No. 6 oil. VOC concentrations detected in the soil samples containing No. 6 oil, ranged from 50 to 80 parts per million (ppm). VOC concentrations decreased to 17 ppm in the sample collected from 3 to 5 feet above the water table and to 0.2 ppm in the sample collected from the phreatic surface. MW3 was advanced to bedrock at 33.5 feet below grade.

MW4 was installed approximately 55 feet north-northeast of the former No. 6 oil UST tank field and 55 feet north-northeast of MW3. No significant concentrations of VOCs were detected in any of the soil samples collected from MW1, and no visual or olfactory evidence of No. 6 oil was present. The boring of MW1 was advanced to 35 feet below grade. Bedrock was not encountered.

Soil types from all borings were similar. Soil generally consisted of brown, well graded fine sands, bedded with fine sands with small but varying amounts of silt, medium and coarse grained sands, and small gravel.

C. Water Table Measurements And Groundwater Flow

The water table elevations in all on-site monitoring wells were measured on April 30, 1996. Water table elevations are plotted on the Groundwater Contour Map in Appendix A. The map indicates that groundwater in the vicinity of the site flows north-northeast. The average hydraulic gradient at the site is calculated to be approximately 17 percent. The steep gradient is

likely controlled by the steeply dipping bedrock subsurface. The gradient likely becomes much shallower on the northern portion of the site, as is suggested by the increased saturated thickness of the water table in MW4, relative to other wells.

No free product was detected in any of the monitoring wells. All groundwater level data are recorded on the Liquid Level Table in Appendix C.

D. Groundwater Sampling and Analysis

On April 30, 1996, Griffin collected groundwater samples from all four of the on-site monitoring wells. Laboratory results are summarized in Table 1. Laboratory report forms are presented in Appendix D. All collected samples were analyzed for the presence of the petroleum compounds benzene, toluene, ethyl benzene, xylenes, and MTBE via EPA Method 602 and for total petroleum hydrocarbons (TPH) via modified EPA Method 8015. All samples were collected according to Griffin's groundwater sampling protocol which complies with state, federal and industry standards. Analysis of duplicate, trip blank, and equipment blank samples collected during sampling, indicate that adequate quality assurance/quality control was maintained during sample collection and analysis.

No targeted petroleum compounds were detected by analyses of the groundwater samples collected from MW1, MW2, or MW4.

Analysis of the groundwater sample collected from MW3, located adjacent to the No. 6 oil UST field, indicates the presence of dissolved petroleum compounds in very low or trace concentrations well below applicable groundwater enforcement standards. A trace of benzene was detected in concentration below the quantitation limit and below the EPA Maximum Contaminant Level (MCL) for the compound of 5.0 parts per billion (ppb). Ethyl benzene was detected in concentration of 9.7 ppb which is below the Vermont Health Advisory Level (HAL) for the compound of 700 ppb. Toluene was detected in concentration of 6.1 ppb which is below the MCL for the compound of 1,000 ppb. Xylenes were detected in concentration of 58.6 ppb which is below the Vermont Groundwater Enforcement Standard (VGES) of 400 ppb for the compound. TPH was detected in low concentration of 0.85 parts per million in the groundwater sample collected from MW3.

IV. RECEPTOR SURVEY AND RISK ASSESSMENT

Griffin conducted a visual survey of the site and vicinity to identify local potential receptors of subsurface petroleum contaminants.

No buildings with basements are located in the area of the remaining No. 6 oil contamination. No. 6 oil is not highly volatile. There is little risk of impact to occupants of nearby buildings from vapor impact from the remaining subsurface No. 6 oil contamination.

TABLE 1.

**Groundwater Quality Summary
North Hartland Dry Kiln
North Hartland, Vermont**

Monitoring Date: April 30, 1996

All Values Reported in ug/L (ppb) Except for TPH in mg/L (ppm)

PARAMETER					Enforcement Standard
	MW1	MW2	MW3	MW4	
Benzene	ND > 1	ND > 1	TBQ < 1	ND > 1	5.0*
Chlorobenzene	ND > 2	ND > 2	ND > 5	ND > 2	100*
1,2-DCB	ND > 2	ND > 2	ND > 2	ND > 2	600*
1,3-DCB	ND > 2	ND > 2	ND > 2	ND > 2	600**
1,4-DCB	ND > 2	ND > 2	ND > 2	ND > 2	75*
Ethylbenzene	ND > 1	ND > 1	9.7	ND > 1	700**
Toluene	ND > 2	ND > 2	6.1	ND > 2	1,000*
Xylenes	ND > 3	ND > 3	58.6	ND > 3	400***
Total BTEX					-
MTBE	ND > 3	ND > 3	ND > 3	ND > 3	40**
BTEX + MTBE					-
Total Petroleum Hydrocarbons (TPH)	ND > .1	ND > 0.1	0.85	ND > 0.1	-

* - EPA Maximum Contaminant Level

** - VT Health Advisory Level

*** - VT Groundwater Enforcement Standard

ND > - None detected above stated limits

TBQ - Trace, below stated quantitation limits

ANALYSIS FOR EPA METHOD 602 VOCs BY EPA METHOD 8260

ANALYSIS FOR TPH BY EPA METHOD 8015

Cooperative water serves the area including the subject property. Water is supplied by a shallow well on the opposite side, from the site, of the Ottawaquechee River. The water source is not at risk of impact from subsurface petroleum contamination at the subject property. One supply wells was identified approximately 900 feet south of the site. The supply well does not appear to be down-gradient from the area of remaining subsurface No. 6 oil contamination. There does not appear to be risk of contamination to this supply well by subsurface petroleum contamination at the site.

The Ottawaquechee River, located both approximately 1,000 feet north of the site and 700 feet east of the site, is the likely discharge point for groundwater at the site. Based on the distance to the river from the site and the very low source strength of dissolved petroleum compounds in groundwater at the contaminant source area, there is likely no significant impact to the surface water of the Ottawaquechee River.

425 yd³ removed
162 yd³ remain

V. CONCLUSIONS

On the basis of this investigation, Griffin has concluded the following:

- 1) There have been releases of No. 6 oil at this site. The amounts and duration of the releases are unknown.
- 2) The source of the release was from former piping leaks and from holes in UST#1, UST#2, and possibly UST#3. The significant potential on-site primary sources of a release (old USTs and ancillary equipment) have been removed. The site is now equipped with modern No. 6 oil storage equipment.
- 3) The releases have resulted in contamination of soil in area of the No. 6 oil UST field. Excavation during the UST removal and replacement, resulted in removal of some free product and an estimated 70 percent of the soils containing No. 6 oil. A total of approximately 425 cubic yards of soils containing No. 6 oil, were removed from the subsurface and asphalt batched.
- 4) Soils at the site consist generally of fine sands with small but varying amounts of silt, medium and coarse grained sands, and small gravel. Bedrock crops out on the southern side of the site, is approximately 17 feet below the surface in the area of MW2, is approximately 30 feet deep in the vicinity of the No. 6 oil UST field, and dips steeply towards the north. Groundwater flow direction and gradient is controlled by the bedrock surface. Groundwater flows north-northeast at a gradient of approximately 17 percent.
- 5) The No. 6 oil saturated soil does not appear to extend to the water table. The No. 6 oil was hot when released from the USTs, which allowed the oil to migrate horizontally and vertically. The oil has subsequently cooled and congealed and is no longer suspected to be mobile.

6). Low concentrations of petroleum compounds were detected in the water sample collected from MW3, located 10 feet from the former No. 6 oil USTs. Concentrations of compounds detected are all lower than applicable enforcement standards (VGES, MCLs, and HALs).

7) Low levels of petroleum compounds will continue to be leached from soil for several years. However, the remaining No. 6 oil in soil at the site will likely not significantly impact groundwater at the site, since the No. 6 oil is not highly mobile at its volatility is low.

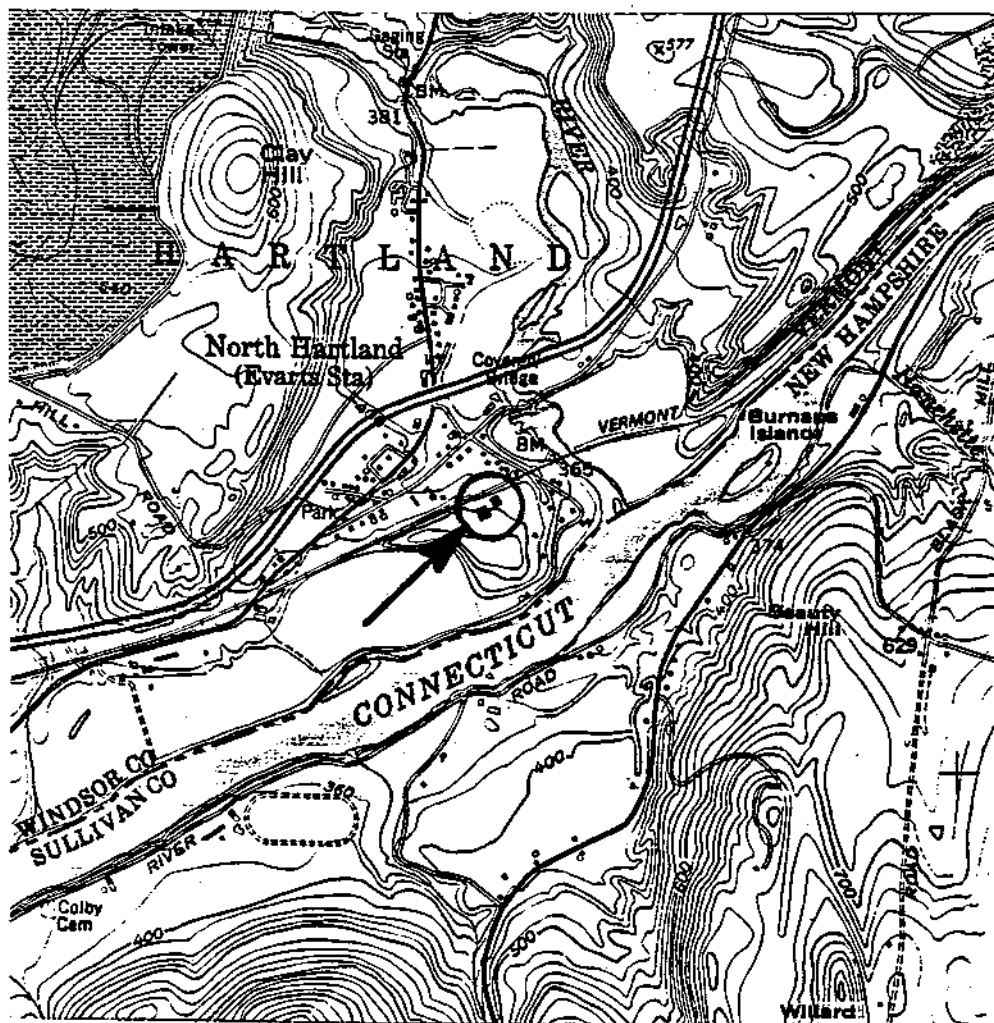
8) No sensitive receptors were determined to have been impacted from subsurface contamination at North Hartland Dry Kiln.

VI RECOMMENDATIONS

1) Since the degree and extent of the subsurface contamination appears to be adequately defined, since there does not appear to be any significant risk to sensitive receptors, human health, or to the environment from the remaining No. 6 oil contamination, and since no groundwater enforcement standards have been exceeded, Griffin recommends that the VTDEC consider North Hartland Dry Kiln eligible for "Sites Management Activities Complete" (SMAC) status.

APPENDIX A

SITE LOCATION MAP
SITE MAP
GROUNDWATER CONTOUR MAP



JOB #: 10954767

SOURCE: USGS- NORTH HARTLAND, VT.-N.H. QUADRANGLE



NORTH HARTLAND DRY KILN

NORTH HARTLAND, VERMONT

SITE LOCATION MAP

DATE: 11/2/95

DWG. #:1

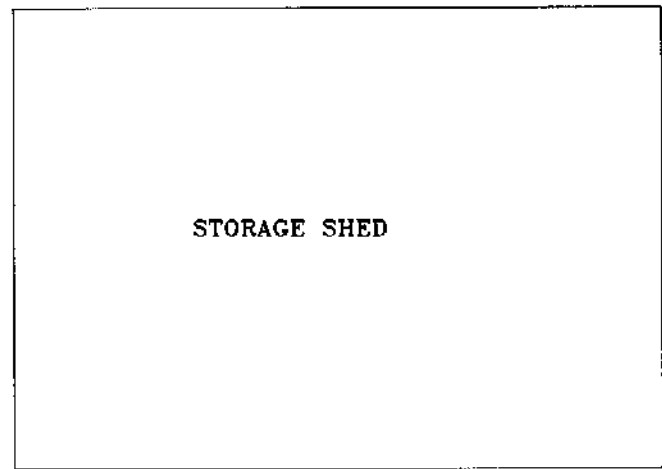
SCALE: 1:24000

DRN.:SB

APP.:LR



EXISTING RAILROAD TRACKS



MW1

MW4

MW3

SB1

MW2

FORMER LOCATION OF 12,500 GAL.
NO. 6 OIL UST. REMOVED 10/27/95

FORMER LOCATION OF 20,000 GAL.
NO. 6 OIL UST'S. REMOVED 10/27/95

FORMER LOCATION OF 5,000 GAL.
DIESEL FUEL. REMOVED 10/27/95

NORTH DEPOT ROAD

LEGEND

MW2

MONITORING WELL

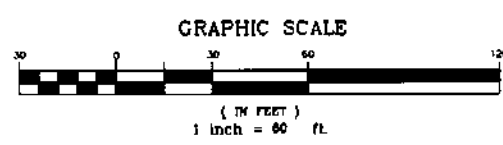
SB1

SOIL BORING



APPROXIMATE LOCATION OF NEW
UNDERGROUND STORAGE TANKS.

PROPERTY LINE



JOB NO. 3964810

**NORTH HARTLAND
DRY KILNS, INC.**
NORTH HARTLAND, VERMONT

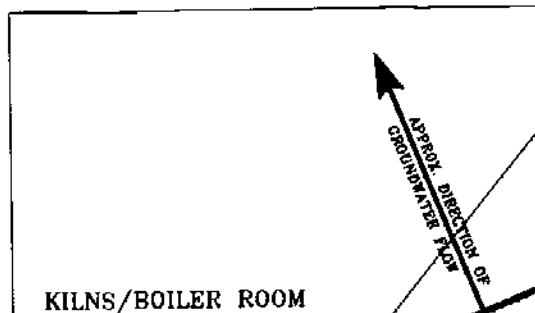
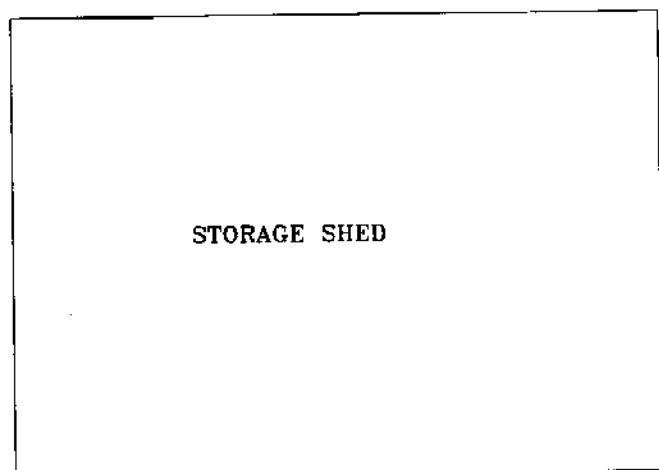
SITE MAP

DATE: 4/16/98	DWG.#: 2	SCALE: 1"=60'	DRN.: SJB	APP.: LR
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MAP DERIVED FROM SITE MAP DRAWN BY SOUTHERN VERMONT ENGINEERING DATED OCT. 31, 1995, CAD NO. 2359_11.



EXISTING RAILROAD TRACKS



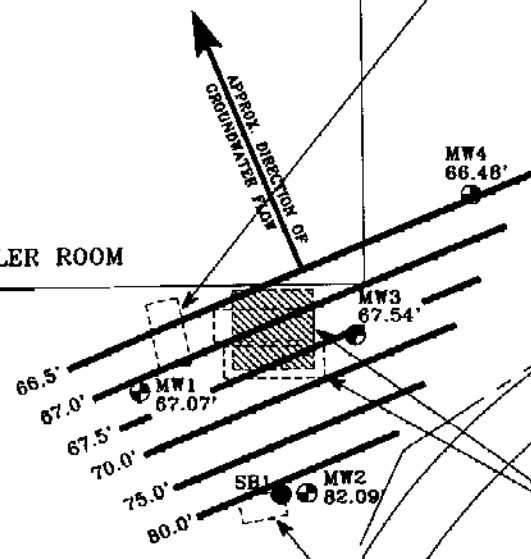
OFFICE

FORMER LOCATION OF 12,500 GAL.
NO. 6 OIL UST. REMOVED 10/27/95

FORMER LOCATION OF 20,000 GAL.
NO. 6 OIL UST'S. REMOVED 10/27/95

FORMER LOCATION OF 5,000 GAL.
DIESEL FUEL. REMOVED 10/27/95

NORTH DEPOT ROAD



LEGEND

MW2

MONITORING WELL AND WATER
TABLE ELEVATION IN FEET

66.50'

GROUNDWATER CONTOUR IN FEET
(DASHED WHERE INFERRED)

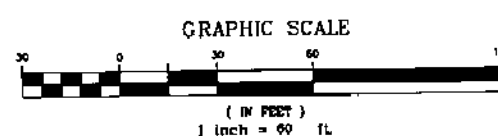
SB1

SOIL BORING



APPROXIMATE LOCATION OF NEW
UNDERGROUND STORAGE TANKS.

PROPERTY LINE



JOB NO. 3984810

**NORTH HARTLAND
DRY KILNS, INC.**
NORTH HARTLAND, VERMONT

GROUNDWATER CONTOUR MAP
DATE MEASURED: 4/30/96

DATE: 4/18/96	DWG.#: 2	SCALE: 1"=60'	DRN.: SJR	APP.: LR
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MAP DERIVED FROM SITE MAP DRAWN BY SOUTHERN VERMONT ENGINEERING DATED OCT. 31, 1995, CAD NO. 2359_11.

APPENDIX B

DRILLING LOGS

PROJECT NORTH HARTLAND DRY KILN, INC.

LOCATION NORTH HARTLAND, VERMONT

DATE DRILLED 4/15/96 TOTAL DEPTH OF HOLE 32.0'

DIAMETER 4.25"

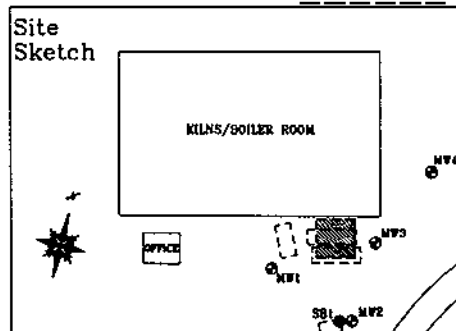
SCREEN DIA. 2" LENGTH 10.0' SLOT SIZE 0.010"

CASING DIA. 2" LENGTH 21.5' TYPE sch 40 pvc

DRILLING CO. TDS DRILLING METHOD HSA

DRILLER TOBBY LOG BY L. REED

WELL NUMBER MW1

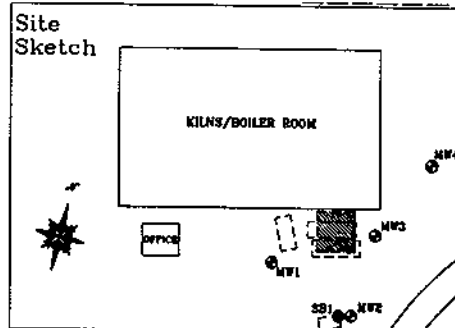


GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX			0
2		LOCKING WELL CAP			2
4		CONCRETE			4
6		NATIVE BACKFILL			6
8		BENTONITE	5'-7'- 5/6/10/9 0.2 ppm	Dry, brown, fine SAND with few medium sand, trace coarse sand, and small rounded gravel.	8
10		NATIVE BACKFILL	10'-12'- 5/6/5/5 0.2 ppm	Damp, brown, very fine SAND and SILT.	10
12		WELL RISER	15'-17'- 5/4/5/6 0.2 ppm	Damp, brown, very fine SAND with some silt.	12
14					14
16					16
18					18
20		BENTONITE	20'-22'- 5/9/9/7 0.2 ppm	Dry, light gray, very fine SAND with trace silt. Small brown horizontal laminae.	20
22		SAND PACK			22
24		WELL SCREEN	25'-27'- 100 0.2 ppm	Spoon refusal, dark brown silty and fine SAND, moist.	24
26		BOTTOM CAP	30'-31.5'-14/17/100.5" 0.2 ppm	Spoon refusal at 31.5'. Wet, SILT and fine SAND with some medium sand.	26
28		BEDROCK		30.9' WATER TABLE	28
30				BASE OF WELL AT 32' REFUSAL AT 32'	30
32					32
34					34
36					36
38					38
40					40
42					42
44					44
46					46
48					48
50					50

PROJECT NORTH HARTLAND DRY KILN, INC.
 LOCATION NORTH HARTLAND, VERMONT
 DATE DRILLED 4/15/96 TOTAL DEPTH OF HOLE 17.0'
 DIAMETER 4.25"
 SCREEN DIA. NA LENGTH NA SLOT SIZE NA
 CASING DIA. NA LENGTH NA TYPE NA
 DRILLING CO. TDS DRILLING METHOD HSA
 DRILLER TOBBY LOG BY L. REED

WELL NUMBER SB1

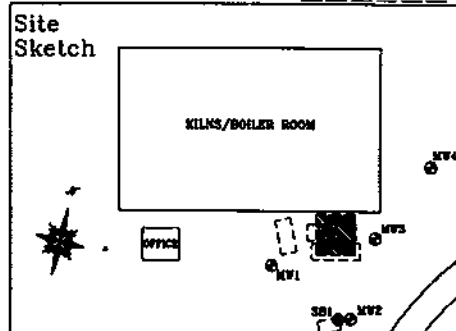


GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0					0
1					1
2					2
3					3
4					4
5					5
6			5'-7'- 2/1/1/3 0.4 ppm	Dry, brown, fine SAND with some medium sand, and trace of small gravel.	6
7					7
8					8
9					9
10					10
11			10'-12'- 5/7/6/7 0.2 ppm	Dry, brown, fine SAND with some medium sand, and trace of small gravel.	11
12					12
13					13
14					14
15				15.0' WATER TABLE	15
16			15'-16.1'- 4/10/100.1" 0.1 ppm	Wet, brown SILT.	16
17					17
18				REFUSAL AT 17'	18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

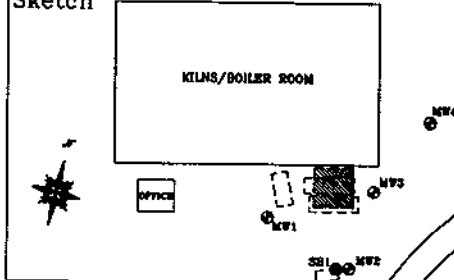
PROJECT NORTH HARTLAND DRY KILN, INC.
 LOCATION NORTH HARTLAND, VERMONT
 DATE DRILLED 4/15/96 TOTAL DEPTH OF HOLE 17.5'
 DIAMETER 4.25"
 SCREEN DIA. 2" LENGTH 5.0' SLOT SIZE 0.010"
 CASING DIA. 2" LENGTH 15.3' TYPE sch 40 pvc
 DRILLING CO. TDS DRILLING METHOD HSA
 DRILLER TOBBY LOG BY L. REED

WELL NUMBER MW2



GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
3	LOCKING EXPANSION PLUG				3
2	LOCKING WELL CAP				2
1	IRON CASING				1
0	CONCRETE				0
1	NATIVE BACKFILL				1
2	BENTONITE				2
3					3
4					4
5				Dry, brown, fine SAND, some medium sand and some gravel.	5
6	WELL RISER				6
7	NATIVE BACKFILL				7
8					8
9					9
10					10
11	BENTONITE				11
12					12
13	SAND PACK				13
14	WELL SCREEN				14
15				15.5' WATER TABLE	15
16	BOTTOM CAP	15'-17'- 5/4/5/15 0.1 ppm		Wet, dark brown, SILT interbedded with fine SAND with trace silt.	16
17					17
18	BEDROCK			BASE OF WELL AT 17.5' REFUSAL AT 17.5'	18
19					19
20					20
21					21

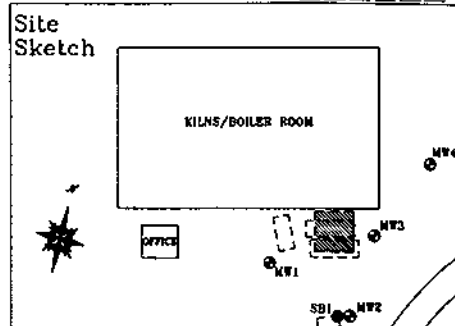
PROJECT NORTH HARTLAND DRY KILN, INC.LOCATION NORTH HARTLAND, VERMONTDATE DRILLED 4/15/96 TOTAL DEPTH OF HOLE 33.5'DIAMETER 4.25"SCREEN DIA. 2" LENGTH 10.0' SLOT SIZE 0.010"CASING DIA. 2" LENGTH 22.5' TYPE sch 40 pvcDRILLING CO. TDS DRILLING METHOD HSADRILLER TOBBY LOG BY L. REEDWELL NUMBER MW3Site
Sketch

GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX			0
2		LOCKING WELL CAP			2
4		CONCRETE			4
6		NATIVE BACKFILL			6
8		BENTONITE	5'-7'- 4/5/6/3 0.1 ppm	Fine and medium SAND with some small gravel.	8
10		NATIVE BACKFILL			10
12			10'-12'- 17/16/13/11	No recovery	12
14		WELL RISER			14
16			15'-17'- 7/9/7/7 50 ppm	Light gray, fine SAND with brown fine sand, horizontal interbeds. No. 6 fuel oil at 15.0'-15.2'.	16
18					18
20			20'-22'- 10/14/16/19 80 ppm	No. 6 fuel oil saturated, black fine SAND.	20
22		BENTONITE			22
24					24
26		SAND PACK	25'-27'- 10/14/11/13 17 ppm	Gray and light brown, fine SAND, trace silt and trace gravel, dry, no oil.	26
28		WELL SCREEN			28
30		BOTTOM CAP	30'-32'- 12/15/13/14 0.2 ppm	30.0' WATER TABLE Wet, medium brown, fine and medium SAND, few silt.	30
32		BEDROCK			32
34				BASE OF WELL AT 33.5' END OF EXPLORATION AT 33.5'	34
36					36
38					38
40					40
42					42
44					44
46					46
48					48
50					50

PROJECT NORTH HARTLAND DRY KILN, INC.
 LOCATION NORTH HARTLAND, VERMONT
 DATE DRILLED 4/15/96 TOTAL DEPTH OF HOLE 35.0'
 DIAMETER 4.25"
 SCREEN DIA. 2" LENGTH 10.0' SLOT SIZE 0.010"
 CASING DIA. 2" LENGTH 24.5' TYPE sch 40 pvc
 DRILLING CO. TDS DRILLING METHOD HSA
 DRILLER TOBBY LOG BY L REED

WELL NUMBER MW4



GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0	ROAD BOX				0
2	LOCKING WELL CAP				2
4	CONCRETE				4
6	NATIVE BACKFILL		0'-10' ND	Fine SAND with a trace medium sand, silt and gravel.	6
8	BENTONITE				8
10	NATIVE BACKFILL				10
12	WELL RISER				12
14					14
16			15'-17'- 5/5/4/5 ND	Light gray, fine SAND with light brown fine sand laminations, dry.	16
18					18
20			20'-22'- 4/4/5/6 ND	Dry, light gray fine SAND with some small brown laminations.	20
22					22
24	BENTONITE				24
26	SAND PACK		25'-27'- 8/11/10/10 0.1 ppm	Dry, light gray, fine and medium SAND.	26
28	WELL SCREEN				28
30			30'-32'- 6/6/8/8 0.3 ppm	31.0' WATER TABLE	30
32	BOTTOM CAP			Wet, brown, medium SAND with some fine sand and trace of coarse sand and small gravel.	32
34	BEDROCK			BASE OF WELL AT 35.0' END OF EXPLORATION AT 35.0'	34
36					36
38					38
40					40
42					42
44					44
46					46
48					48
50					50

APPENDIX C

WATER LEVEL DATA

Monitoring Date: 4/30/96

Elevations Based on Arbitrary Datum With Top of MW2 Casing Set at 100.00 ft.
All Values Reported in feet

APPENDIX D

LABORATORY RESULTS



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

EPA METHOD 602 COMPOUNDS BY EPA METHOD 8260

CLIENT: Griffin International
PROJECT NAME: N. Hartland Dry Kiln
REPORT DATE: May 7, 1996
SAMPLER: Don Tourangeau
DATE SAMPLED: April 30, 1996
DATE RECEIVED: April 30, 1996

PROJECT CODE: GINH1587
ANALYSIS DATE: May 6, 1996
STATION: Trip Blank
REF.#: 88,285
TIME SAMPLED: 07:40

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	2	ND
1,2-Dichlorobenzene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
Ethylbenzene	1	ND
Toluene	2	ND
Xylene	3	ND
MTBE	3	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

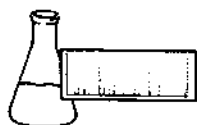
ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane:	97.%
Toluene-d8:	108.%
4-Bromofluorobenzene:	84.%

NOTES:

1 None detected

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LABORATORY REPORT

EPA METHOD 602 COMPOUNDS BY EPA METHOD 8260

CLIENT: Griffin International
PROJECT NAME: N. Hartland Dry Kiln
REPORT DATE: May 7, 1996
SAMPLER: Don Tourangeau
DATE SAMPLED: April 30, 1996
DATE RECEIVED: April 30, 1996

PROJECT CODE: GINH1587
ANALYSIS DATE: May 6, 1996
STATION: MW #4
REF.#: 88,286
TIME SAMPLED: 10:49

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	2	ND
1,2-Dichlorobenzene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
Ethylbenzene	1	ND
Toluene	2	ND
Xylene	3	ND
MTBE	3	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane:	92.%
Toluene-d8:	105.%
4-Bromofluorobenzene:	84.%

NOTES:

1 None detected



ENDYNE, INC.

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LABORATORY REPORT

EPA METHOD 602 COMPOUNDS BY EPA METHOD 8260

CLIENT: Griffin International
PROJECT NAME: N. Hartland Dry Kiln
REPORT DATE: May 7, 1996
SAMPLER: Don Tourangeau
DATE SAMPLED: April 30, 1996
DATE RECEIVED: April 30, 1996

PROJECT CODE: GINH1587
ANALYSIS DATE: May 7, 1996
STATION: MW #3
REF.#: 88,287
TIME SAMPLED: 11:18

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	TBQ ¹
Chlorobenzene	2	ND ²
1,2-Dichlorobenzene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
Ethylbenzene	1	9.7
Toluene	2	6.1
Xylene	3	58.6
MTBE	3	ND

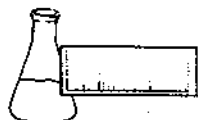
NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane:	98.%
Toluene-d8:	94.%
4-Bromofluorobenzene:	98.%

NOTES:

- 1 Trace below quantitation limit
- 2 None detected



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LABORATORY REPORT

EPA METHOD 602 COMPOUNDS BY EPA METHOD 8260

CLIENT: Griffin International
PROJECT NAME: N. Hartland Dry Kiln
REPORT DATE: May 7, 1996
SAMPLER: Don Tourangeau
DATE SAMPLED: April 30, 1996
DATE RECEIVED: April 30, 1996

PROJECT CODE: GINH1587
ANALYSIS DATE: May 7, 1996
STATION: Duplicate
REF.#: 88,288
TIME SAMPLED: 11:18

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	TBQ ¹
Chlorobenzene	2	ND ²
1,2-Dichlorobenzene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
Ethylbenzene	1	10.0
Toluene	2	8.9
Xylene	3	56.2
MTBE	3	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane:	89.%
Toluene-d8:	115.%
4-Bromofluorobenzene:	83.%

NOTES:

- 1 Trace below quantitation limit
- 2 None detected

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LABORATORY REPORT

EPA METHOD 602 COMPOUNDS BY EPA METHOD 8260

CLIENT: Griffin International
PROJECT NAME: N. Hartland Dry Kiln
REPORT DATE: May 7, 1996
SAMPLER: Don Tourangeau
DATE SAMPLED: April 30, 1996
DATE RECEIVED: April 30, 1996

PROJECT CODE: GINH1587
ANALYSIS DATE: May 6, 1996
STATION: MW #1
REF.#: 88,289
TIME SAMPLED: 11:41

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	2	ND
1,2-Dichlorobenzene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
Ethylbenzene	1	ND
Toluene	2	ND
Xylene	3	ND
MTBE	3	ND

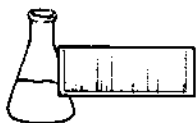
NUMBER OF UNIDENTIFIED PEAKS FOUND: 2

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane:	96.%
Toluene-d8:	95.%
4-Bromofluorobenzene:	92.%

NOTES:

1 None detected



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LABORATORY REPORT

EPA METHOD 602 COMPOUNDS BY EPA METHOD 8260

CLIENT: Griffin International
PROJECT NAME: N. Hartland Dry Kiln
REPORT DATE: May 7, 1996
SAMPLER: Don Tourangeau
DATE SAMPLED: April 30, 1996
DATE RECEIVED: April 30, 1996

PROJECT CODE: GINH1587
ANALYSIS DATE: May 6, 1996
STATION: MW #2
REF.#: 88,290
TIME SAMPLED: 11:57

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	2	ND
1,2-Dichlorobenzene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
Ethylbenzene	1	ND
Toluene	2	ND
Xylene	3	ND
MTBE	3	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

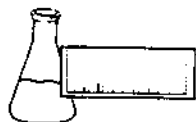
ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane:	92.%
Toluene-d8:	97.%
4-Bromofluorobenzene:	90.%

NOTES:

1 None detected

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Laboratory Services

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(802) 879-4333
FAX 879-7103

LABORATORY REPORT

EPA METHOD 602 COMPOUNDS BY EPA METHOD 8260

CLIENT: Griffin International
PROJECT NAME: N. Hartland Dry Kiln
REPORT DATE: May 7, 1996
SAMPLER: Don Tourangeau
DATE SAMPLED: April 30, 1996
DATE RECEIVED: April 30, 1996

PROJECT CODE: GINH1587
ANALYSIS DATE: May 6, 1996
STATION: Equipment Blank
REF.#: 88,291
TIME SAMPLED: 12:05

<u>Parameter</u>	<u>Detection Limit (ug/L)</u>	<u>Concentration (ug/L)</u>
Benzene	1	ND ¹
Chlorobenzene	2	ND
1,2-Dichlorobenzene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
Ethylbenzene	1	ND
Toluene	2	ND
Xylene	3	ND
MTBE	3	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 89.%
Toluene-d8: 96.%
4-Bromofluorobenzene: 89.%

NOTES:

1 None detected

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32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

3964810

CHAIN-OF-CUSTODY RECORD

16574

Project Name: <i>N. HARTLAND DRY KEN</i> Site Location: <i>N. HARTLAND</i>	Reporting Address: <i>GRIFFIN</i>	Billing Address: <i>GRIFFIN</i>
Endyne Project Number: <i>GINH1587</i>	Company: Contact Name/Phone #: <i>LAVIE ROOD</i>	Sampler Name: <i>DOWN TOWN MAGNETIC</i> Phone #:

[illegible]

Relinquished by: Signature <i>[Signature]</i>	Received by: Signature <i>[Signature] M. Chambers</i>	Date/Time 4-30-96 1:50
Relinquished by: Signature	Received by: Signature	Date/Time

New York State Project: Yes No ☒

Requested Analyses

[illegible]

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Laboratory Services

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REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International
PROJECT NAME: N. Hartland Dry Kiln
DATE REPORTED: May 7, 1996
DATE SAMPLED: April 30, 1996

PROJECT CODE: GINH1588
REF. #: 88,292 - 88,298

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody indicated sample preservation with HCl upon arrival at the laboratory.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy were monitored by laboratory control standards. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures

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ENDYNE, INC.

Laboratory Services

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Williston, Vermont 05495
(802) 879-4333
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LABORATORY REPORT

TOTAL PETROLEUM HYDROCARBONS (TPH) BY MODIFIED EPA METHOD 8015

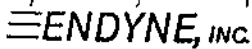
DATE: May 7, 1996
CLIENT: Griffin International
PROJECT: N. Hartland Dry Kiln
PROJECT CODE: GINH1588
COLLECTED BY: Don Tourangeau
DATE SAMPLED: April 30, 1996
DATE RECEIVED: April 30, 1996

<u>Reference #</u>	<u>Sample ID</u>	<u>Concentration(mg/L)¹</u>
88,292	Trip Blank; 07:40	ND ²
88,293	MW #4; 10:49	ND
88,294	MW #3; 11:18	0.85
88,295	Duplicate; 11:18	0.89
88,296	MW #1; 11:41	ND
88,297	MW #2; 11:57	ND
88,298	Equipment Blank; 12:05	ND

Notes:

- 1 Method detection limit is 0.10 mg/L.
- 2 None Detected

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Williston, Vermont 05495
(802) 879-4333

#3964810

CHAIN-OF-CUSTODY RECORD

16574

Project Name: <i>N. HARTLAND DRY Kien</i>	Reporting Address: <i>GRiffin</i>	Billing Address: <i>GRiffin</i>
Site Location: <i>N. HARTLAND</i>	Company: <i>LAURIE ROED</i>	Sampler Name: <i>DOWN TOUR AUGER</i>
Endyne Project Number: <i>GINH-1588</i>	Contact Name/Phone #: <i>LAURIE ROED</i>	Phone #: <i></i>

[illegible]

Relinquished by: Signature <i>[Signature]</i>	Received by: Signature <i>[Signature]</i>	Date/Time 4-30-96 1:50
Relinquished by: Signature	Received by: Signature	Date/Time

New York State Project: Yes ☐ No ☒

Requested Analyses											
1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD ₅	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 600/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify): <i>TSPH BY 8015</i>										